

REMARKS

The following remarks are responsive to the Office Action mailed on January 29, 2004. At the time the Office Action was mailed, claims 1 through 63 were pending. By way of the present response, claims 1, 18, 28, 33, 50, 55 and 60 have been amended. No new matter has been added. No claims have been canceled. As such, claims 1 through 63 remain pending. Applicant respectfully requests reconsideration of the present application and the allowance of claims 1 through 63.

Summary of Office Action Rejections

Claims 1-3, 5-13, 15-20, 22-35, 37-45, 47-52 and 54-63 have been rejected under 35 USC § 103(a) as being unpatentable over Nakamura, U.S. Patent No. 6,192,330 (hereinafter "Nakamura"), in view of Muddu, U.S. Patent No. 6,314,546 (hereinafter "Muddu") and further in view of Dansky et al, U.S. Patent No. 6,028,989 (hereinafter "Dansky").

Claims 4, 21, 36 and 53 have been rejected under 35 USC § 103(a) as unpatentable over Nakamura in view of Muddu and in further view of Dansky and in further view of "Modeling the Driving-Point Characteristics of Resistive Interconnect for Accurate Delay Estimation," Peter R. O'Brien and Thomas Savarino, IEEE 1989 (hereinafter "O'Brien and Savarino").

Claims 14 and 16 have been rejected under 35 USC 103(a) as being unpatentable over Nakamura in view of Muddu and in further view of Dansky and in further view of Arsenault et al, U.S. Patent No. 6,396,256 (hereinafter "Arsenault").

Status of the Claims

Claims 1, 18, 28, 33, 50 and 60 have been amended to make explicit what was inherent or implicit in the existing claim language. No new matter has been added. Claim 55 has been amended to correct an obvious transcription error in the preamble of the claim.

Arguments

The Office Action repeats the stated grounds for rejection of claims 1-63 which the Examiner put forth in a previous Office Action (9/8/03 Office Action, paras. 4-6.3). Applicant respectfully disagrees with the rejections for at least the reasons that Applicant has argued in response to the prior Office Action; which arguments are restated below in a form that the Applicant believes will demonstrate the improper nature of the rejections.

In addition, Applicant submits that the rejections are improper because neither Nakamura nor Dansky qualify as prior art. Nakamura cannot be used as a prior art reference under 35 USC 103(a) because it is non-analogous art and does not qualify as prior art under 35 USC 102. Dansky cannot be used as a prior art reference under 35 USC 103(a) because it is it is non-enabling under the requirements of 35 USC 112 para.1.

The Nakamura Reference Is Non-analogous Art

In the Office Action mailed January 29, 2004, the Examiner states that the Applicant has acknowledged Nakamura as analogous art (1/29/04 Office Action, p.5). The Applicant has made no such acknowledgement. Rather, the Applicant has merely refrained from making the argument until now, in the good faith belief

that applicant's other arguments were more than sufficient to demonstrate that the combination of cited references does not teach or suggest every limitation of the rejected claims, even if Nakamura was analogous art.

'In order to rely on a reference as a basis for rejection of an Applicant's invention, the reference must either be in the field of Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.' *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). While Patent Office classification of references and the cross-references in the official search notes are some evidence of 'nonanalogy' or 'analogy' respectively, the court has found 'the similarities and differences in structure and function of the inventions to carry far greater weight.' *In re Ellis*, 476 F.2d 1370, 1372, 177 USPQ 526, 527 (CCPA 1973).

MPEP 2141.01(a).

The field of the Applicant's endeavor is stated in the present application: "The field of the invention relates to electronic circuit simulation. More specifically, the field of [the] invention relates to simplifying the simulation for cross capacitance noise applications." (emphasis added) (application, p. 2, ln. 6-8). The field of invention of Nakamura is "recognizing and simulating two-dimensional shapes in evaluating semiconductor elements." (emphasis added) (Nakamura, col. 1, ln. 9-11). That is, Nakamura is concerned with the mechanical modeling of the surface of a semiconductor while the present invention is concerned with the electrical modeling of electronic circuits.

Nor is Nakamura pertinent to the particular problem with which the Applicant is concerned. The present invention is concerned with simplifying the calculation of cross capacitance noise in complex electronic circuits (application, p. 4, ln 19 through p. 5, ln. 3). Nakamura is concerned with modeling the varying angles on the

surface of a semiconductor during a simulation of metallic vapor deposition (Nakamura, col. 5, ln. 26-30) which has nothing to do with equivalent electrical circuits or cross capacitance noise.

Furthermore, the function of the present invention is entirely different from the function of Nakamura. As noted above, Nakamura functions to simulate a time-varying surface during a semiconductor fabrication process, which is not the same as calculating an electronic circuit model.

Therefore, because Nakamura is not in the field of the Applicant's endeavor, is not pertinent to the problem with which the Applicant is concerned, and provides a different function than the present invention, Applicant respectfully submits that Nakamura is non-analogous art under the holdings of *Oetike* and *Ellis*. Accordingly, Applicant respectfully requests that all of the rejections based on the Nakamura reference be withdrawn.

The Dansky Reference is Non-enabling

"The test of enablement is whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation." *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988).

Dansky claims "a program method for calculating crosstalk voltage and modeling for a planned chip design, comprising . . . in a second process calculating a noise voltage of the planned chip design . . ." (Dansky, col. 17, ln 26-42) (emphasis added). However, Dansky does not disclose critical information that

would enable one reasonably skilled in the art to make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. Specifically, Dansky does not disclose critical equations which are essential to make or use the invention. Dansky discloses: "Closed form equations were developed to estimate the noise levels (in MV) on a net (victim net) due to transition on another net (perp net). . . . The closed form equations are based on a lumped elements [sic] model of coupled transmission line." (Dansky, col. 7, ln. 9-13). The calculation of the noise voltage levels is the *raison d'être* of Dansky and that calculation depends on the "closed form equations;" yet nowhere in the entire disclosure of Dansky are the lumped model or the equations revealed. Dansky merely lists program inputs and program outputs, and what happens in between is a mystery, Applicant submits that without these equations and models, one reasonably skilled in the art could not make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation. Therefore, Applicant respectfully requests that all of the rejections based on the Dansky reference be withdrawn.

Claim Rejections Under 35 USC 103(a)

Notwithstanding the foregoing arguments with respect to the impropriety of Nakamura and Dansky as prior art, Applicant argues in the alternative and respectfully disagrees with the rejections because: 1) the cited references do not suggest the desirability of making the combination; and 2) even if the cited references could be combined, the combination does not teach or suggest every feature of the rejected claims.

The Cited References Do Not Suggest The Desirability Of Making The Combination

"To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985) (emphasis added).

The Office Action states that it would have been obvious, to one of ordinary skill in the art, at the time of the invention, to have modified the Nakamura reference with the Muddu reference (1/29/04 Office Action, p. 8, ln 6-7). Applicant respectfully submits that such a modification would not only be nonobvious to those skilled in the relevant arts; it would be impossible without rendering the reference nonfunctional. As noted above, Nakamura is directed to a mechanical model of a surface. Muddu is directed to an electrical model of a circuit (Muddu, col. 3, ln. 10-

12). There is no way to make a combination of the mechanical and electrical models.

The Examiner asserts that the proposed modification is motivated by Muddu, cites 103 lines from Muddu, and concludes: “when designing with sub-micron design rules for integrated circuit design, accurate models for interconnect delay of logic gates are required for functional models that reflect the true functioning on the silicon substrate before expensive fabrication is performed.” (1/29/04 Office Action, p. 8, ln. 8-11) (emphasis added). The Examiner has merely stated a motivation for Muddu, standing alone, and has not made any argument as to how the two references might be combined. Nakamura has nothing to do with models for the interconnect delay of logic gates. Applicant submits that the Examiner has not presented a convincing line of reasoning, that the references cannot be combined, and respectfully requests the Examiner to provide a rationale or withdraw all of the claim rejections based on the combination of Nakamura and Muddu.

The Office Action also states that it would have been obvious, to one of ordinary skill in the art, at the time of the invention, to have modified the Nakamura reference with the Dansky reference (1/29/04 Office Action, p. 8, ln. 17-18).

The Examiner asserts that the proposed modification is motivated by Dansky, cites 46 lines from Muddu, and concludes: “it is important to calculate in an efficient manner the voltage noise characteristics of an integrated circuit design.” (1/29/04 Office Action, p. 8, ln. 18-20) (emphasis added). As before, the Examiner has merely stated a motivation for Dansky, standing alone, and has not made any argument as to how the two references might be combined. Nakamura has nothing

to do with calculating noise voltage characteristics. Applicant submits that the Examiner has not presented a convincing line of reasoning, that the references cannot be combined, and respectfully requests the Examiner to provide a rationale or withdraw all of the claim rejections based on the combination of Nakamura and Dansky.

Even If The Cited References Could Be Combined, The Combination Does Not Teach Or Suggest Every Feature Of The Rejected Claims

The Office Action asserts that Nakamura discloses a “string model” as claimed in independent claims 1, 18, 28, 33 and 50 and cites Nakamura’s figures 3, 5, 6, 9, 22-30 and 34 as examples (1/29/04 Office Action, p. 8, ln 1). Applicant submits that the Examiner has misstated the applicant’s claim and has taken the word “string” out of the context of Nakamura, as a whole, to structure an argument that is inapposite.

Claims 1, 18, 28, 33 and 50 claim “a string that models a trace.” Nakamura discloses “a string that represents the surface of a material” (Nakamura, col. 5, ln. 41). Nakamura is concerned with modeling the varying angles on the surface of a semiconductor during a simulation of metallic vapor deposition (Nakamura, col. 5, ln. 26-30). The figures cited by the Examiner, showing angles and spans, confirm that Nakamura discloses a mechanical model of a surface which is not the same as “a string that models a trace” as claimed in claims 1, 18, 28, 33 and 50. As Muddu and Dansky do not teach or suggest “a string that models a trace,” even if the combination of references was proper (which it is not), there is no combination of

Nakamura, Muddu and Dansky that teaches or suggests "a string that models a trace" as claimed in claims 1, 18, 28, 33 and 50.

Therefore, Applicant submits that claims 1, 18, 28, 33 and 50 are not rendered obvious by the cited references and requests the allowance of the claims. Claims 2-17 depend from claim 1, claims 19-27 depend from claim 18, claims 29-32 depend from claim 28, claims 34-49 depend from claim 33 and claims 51-59 depend from claim 50. Accordingly, Applicant submits that claims 19-27, 29-32, 34-49 and 51-59 are also allowable.

CONCLUSION

Believing all claims to be patentable, the Applicant respectfully requests the allowance of same.

Applicants respectfully submit the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Richard W. Thill at (408) 720-8300.

If any additional fee is required, please charge Deposit Account No. 02-2666.

Respectfully submitted,

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